

REMARKS

This paper responds to the Final Office Action mailed on August 28, 2008.

No claims are amended, no claims are canceled, and no claims are added; as a result, claims 8-53 are now pending in this application with claims 28-53 standing withdrawn.

Applicant brings to the attention of the Examiner the Response to Final Office Action filed on June 2, 2008 and Non-final Office Action mailed on August 28, 2008 for U.S. Application Serial No. 10/744,632 (Atty Ref 303.853US~~1~~), which is assigned to Examiner Rick K. Chang.

§103 Rejection of the Claims

Claims 8-27 were rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,552,345 to Schrantz *et al.* (hereinafter, "the Schrantz reference") in view of U.S. Application Publication No. 2003/0052098 A1 to Kim *et al.* (hereinafter, "the Kim reference") in view of JP 2001026435 to Morita, *et al.* (hereinafter, "the Morita reference") in view of U.S. Patent No. 6,562,698 to Manor (hereinafter, "the Manor reference"). Claims 9, 15, 23 and 27 were rejected under 35 U.S.C. § 103(a) as being unpatentable over the Schrantz reference in view of the Kim reference in view of the Morita reference and the Manor reference as applied to claims 8-9, 14, and 24 above, and further in view of U.S. Patent No. 6,257,224 to Yoshino *et al.* (hereinafter, "the Yoshino reference"). Claims 11 and 20 were rejected under 35 U.S.C. § 103(a) as being unpatentable over the Schrantz reference *et al.* in view of the Kim reference in view of the Morita reference and the Manor reference as applied to claims 10 and 16 above, and further in view of U.S. Patent No. 4,811,722 to Brehm *et al.* (hereinafter, "the Brehm reference"). Claims 17 and 26 were rejected under 35 U.S.C. § 103(a) as being unpatentable over the Schrantz reference in view of the Kim reference in view of the Morita reference and the Manor reference as applied to claims 16 and 24 above, and further in view of U.S. Patent No. 6,291,317 to Salatino *et al.* (hereinafter, "the Salatino reference"). Claim 18 was rejected under 35 U.S.C. § 103(a) as being unpatentable over the Schrantz reference in view of the Kim reference in view of the Morita reference and the Manor reference in view of the Salatino reference as applied to claim 17 above, and further in view of U.S. Patent No. 6,257,224 to Yoshino *et al.* (hereinafter, "the Yoshino reference"). Applicants disagree with the stated grounds of rejection and desire to

further clarify various distinctions of the present embodiments over the cited art. Reconsideration of the present application is therefore requested in light of the following remarks.

The Examiner has cited the Schrantz reference for disclosing, *inter-alia*, singulating semiconductor dies using laser ablation (including the use of a YAG laser) and sawing. Applicants note, however, that the Schrantz reference fails to disclose or suggest directing a coolant stream onto the substrate. Accordingly, the Examiner has cited the Kim reference to allegedly provide this missing teaching.

With reference now to the Kim reference, Applicants note that the disclosed stream is not applied to the substrate to reduce a thermal effect (*e.g.*, arising either due to a mechanical sawing operation on the substrate, laser irradiation of the substrate, or both). Instead, the disclosed stream is applied to a substrate to *promote* a thermal effect (*e.g.*, promote the generation of thermal stresses) to assist in the singulation of the substrate. The Examiner is directed to numerous portions of the Kim reference. For example, in the Abstract, it is pointed out that the invention is directed to promoting the development of thermal stresses in order to cut the substrate: "Disclosed is a coolant for cooling a selectively heated portion of a ...substrate to cut the selected portion using *thermal stress*..." (Emphasis added). Further, paragraph [0020] points out that: "the invention...provides a method of cutting...using a *thermal stress*, in which *the rapidly heated glass substrate is rapidly cooled*...thereby optimizing a cutting speed..." (Emphasis added). Clearly, the Kim reference is not directed to minimizing a thermal effect, such as a thermal stress, but to promoting a thermal effect. Accordingly, Applicants submit that the Kim reference *teaches away* from minimizing a thermal effect.

Applicants also note that the references applied in combination with the Schrantz and Kim references (the Morita and the Manor references) fail to provide any teaching regarding a cooling stream applied to a substrate.

Turning now to the claims, differences between the claim language and the applied references will be specifically pointed out. Claim 8 presently recites: "A method for dicing workpieces, comprising...*directing a coolant onto the scribe to reduce a thermal effect on the workpiece*..." (Emphasis added). As discussed in greater detail above, the Kim reference fails to disclose this. In fact, Applicants submit that the Kim reference *teaches away* from the presently disclosed embodiments. Claim 8 is therefore presently allowable. Claims depending from claim

8 are also allowable based upon the allowable form of the base claim, and further in view of the additional limitations recited in the dependent claims.

Claim 13 presently recites: "A method for dicing workpieces, comprising...*providing a coolant to a surface of the workpiece proximate to the scribe to reduce a thermal effect on the workpiece...*" (Emphasis added). Again, the Kim reference does not disclose or suggest this. Further, none of the applied references provide this teaching. Claim 13 is therefore also presently allowable. Claims depending from claim 13 are also allowable based upon the allowable form of the base claim, and further in view of the additional limitations recited in the dependent claims.

Claim 16 presently recites in pertinent part: "A method for dicing workpieces, comprising...locally cooling a surface of the workpiece by providing a coolant proximate to the scribe to reduce a temperature effect on the workpiece..." (Emphasis added). The applied references simply do not disclose or suggest this. Claim 16 is therefore also presently allowable. Claims depending from claim 16 are also allowable based upon the allowable form of the base claim, and further in view of the additional limitations recited in the dependent claims.

Claim 24 presently recites: "A method for dicing an integrated circuit substrate, comprising...cooling the scribe by *providing a coolant proximate to the scribe to reduce a thermal effect on the workpiece...*" (Emphasis added). Again, none of the references disclose or suggest this. Claim 24 is therefore also presently allowable. Claims depending from claim 24 are also allowable based upon the allowable form of the base claim, and further in view of the additional limitations recited in the dependent claims.

With regard to the Examiner's rejection of claims 9, 15, 23 and 27 based in part upon the Yoshino reference, Applicants note that the Yoshino reference is cited for disclosing a laser repetition frequency of 2kHz and a power of 300 watts. (Office Action at page 4). The cited reference fails to disclose the teachings missing from the Schrantz, Kim, Morita and Manor references.

With regard to the Examiner's rejection of claims 11 and 20 based in part upon the Brehm reference, Applicants note that the Brehm reference is cited for teaching a nickel diamond cutter. Again, the cited reference fails to disclose the teachings missing from the Schrantz, Kim, Morita and Manor references.

With regard to the Examiner's rejection of claims 17 and 26 based in part upon the Salatino reference, Applicants note that the Salatino reference is cited for teaching a specific cutter moving speed. The cited reference fails to disclose the teachings missing from the Schrantz, Kim, Morita and Manor references.

Reservation of Rights

In the interest of clarity and brevity, Applicant may not have addressed every assertion made in the Office Action. Applicant's silence regarding any such assertion does not constitute any admission or acquiescence. Applicant reserves all rights not exercised in connection with this response, such as the right to challenge or rebut any tacit or explicit characterization of any reference or of any of the present claims, the right to challenge or rebut any asserted factual or legal basis of any of the rejections, the right to swear behind any cited reference such as provided under 37 C.F.R. § 1.131 or otherwise, or the right to assert co-ownership of any cited reference. Applicant does not admit that any of the cited references or any other references of record is relevant to the present claims, or that they constitute prior art. To the extent that any rejection or assertion is based upon the Examiner's personal knowledge, rather than any objective evidence of record as manifested by a cited prior art reference, Applicant timely objects to such reliance on Official Notice, and reserves all rights to request that the Examiner provide a reference or affidavit in support of such assertion, as required by MPEP § 2144.03. Applicant reserves all rights to pursue any cancelled claims in a subsequent patent application claiming the benefit of priority of the present patent application, and to request rejoinder of any withdrawn claim, as required by MPEP § 821.04.

CONCLUSION

Applicant respectfully submits that the claims are in condition for allowance, and notification to that effect is earnestly requested. The Examiner is invited to telephone Applicant's representative at (612) 349-9587 to facilitate prosecution of this application.

If necessary, please charge any additional fees or credit overpayment to Deposit Account No. 19-0743.

Respectfully submitted,

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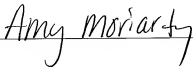
Date 28 Oct. '08

By 

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CERTIFICATE UNDER 37 CFR 1.8: The undersigned hereby certifies that this correspondence is being filed using the USPTO's electronic filing system EFS-Web, and is addressed to: Mail Stop AF, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on October 28, 2008.

Name



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